

June 17, 2019

SPECIAL PROVISIONS

GREEN PEDESTRIAN BRIDGE -- CITY OF MONTROSE, COLORADO

The following provisions take precedence over specifications or plans and supplement of the **2017 Edition of the Colorado Department of Highways "Standard Specifications for Road and Bridge Construction"** (Standard Specifications) which is to be used to control construction of this project.

**PROJECT SPECIAL PROVISIONS**

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REVISION OF SECTION 107  
PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE  
GREEN PEDESTRIAN BRIDGE – CITY OF MONTROSE, COLORADO

Section 107 of the Standard Specification is hereby revised as follows:

Subsection 107.12 shall include the following:

In accordance with Section 107.12, the Contractor shall save existing riparian, wetlands and other existing vegetation, except for those that must be removed to accommodate construction of the project. The Contractor shall perform all the work in such a manner that the least environmental damage will result. Any questionable areas or items shall be brought to the attention of the Engineer for approval prior to vegetation removal or any damaging activity.

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REVISION OF SECTION 628  
BRIDGE GIRDER AND DECK UNIT  
GREEN PEDESTRIAN BRIDGE – CITY OF MONTROSE, COLORADO

Section 628 is hereby added to the Standard Specifications for this project as follows:

**DESCRIPTION**

**628.01** This work consists of the design, fabrication, and erection of a simple span, welded self weathering steel (ASTM A 709 Grade 50W), pedestrian truss bridge with concrete deck in accordance with the specifications and plan details. Alternate construction materials, e.g. fiberglass or timber, may be submitted for approval

Potential bridge suppliers are:

1. Continental Pedestrian Truss (Contech)  
9025 Centre Pointe Drive  
West Chester, Ohio 45069  
1-800-338-1122
2. Steadfast Bridges  
4021 Gault Ave. South  
Fort Payne, Alabama 35967  
256-845-0154
3. Excel Bridge Manufacturing Company  
12001 Shoemaker Avenue  
Santa Fe Springs, California 90670  
562-944-0701
4. Big R Manufacturing LLC  
19060 County Road 66  
Greeley, Colorado 80631  
1-888-339-1684
5. Wheeler Lumber, LLC  
9330 James Avenue South  
Minneapolis, Minnesota 55431  
952-929-7854

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**MATERIALS**

**628.02 Structural Steel.** All structural steel shall be new (unused) material and shall conform to the requirements in Section 509. Floor beams, stringers, and members of each truss (upper and lower chords, diagonals, end posts and vertical posts) utilized in the bridges shall meet a longitudinal Charpy V notch (CVN) values per Table C6.6.2.1-1 of the AASHTO LRFD Bridge Design Specifications for Temperature Zone 2 (typically 25 ft. lbs. at 40 degrees Fahrenheit). Testing shall be in accordance with AASHTO T 243 (ASTM A 673). The H frequency of heat testing shall be used. The Contractor shall provide the Engineer and the Staff Bridge Branch Fabrication Inspection Unit with copies of all certified mill test reports and CVN test reports, heat numbers and Buy America documentation for all structural steel and bolts. Minimum thickness of closed structural tubular members shall be 1/4 of an inch.

**CONSTRUCTION REQUIREMENTS**

**628.03 Concrete.** When concrete deck is used, concrete shall be Class D (Bridge) unless specified otherwise in the plans. The concrete and reinforcement shall conform to the requirements in Sections 601 and 602 respectively.

**628.04 Timber.** When timber deck is used, the timber shall conform to the requirements in Section 508. It shall be placed transverse to the trusses and have a minimum nominal thickness of 3 inches. Decking shall be fastened securely to each stringer and at each end to prevent warping. All timber shall be new (unused) material and conform to either of the following:

- (1) Southern Pine, No. 1 or better quality, Graded in accordance with Southern Pine Inspection Bureau (SPIB) rules.
- (2) Douglas Fir-Larch, No. 1 or better quality, Graded in accordance with West Coast Lumber Inspection Bureau (WCLIB) rules.

All lumber shall be manufactured and inspected in accordance with the latest edition of Product Standard 20-70 as published by the Department of Commerce, and shall be grade marked or have an accompanying certificate from a certified grading agency. The grading agency shall be certified by the Board of Review of the American Lumber Standards Committee.

All timber, including rubrails, shall be pressure treated, conforming to the requirements of the American Wood Preserver's Association (AWPA) Standards, Section C1 and C2 (Soil Contact). Either Ammoniacal Copper Quaternary (ACQ), Ammoniacal Copper Zinc Arsenate (ACZA) or Chromated Copper Arsenate (CCA) preservatives conforming to the requirements of Section P5 (Standards For Waterborne Preservatives) of the AWPA Standards shall be utilized and treatment shall be to a total absorption of 0.40 pounds per cubic foot of timber. A certified treatment report shall be provided to the Engineer and the Staff Bridge Branch Fabrication Inspection Unit.

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**628.05 Design.** The current editions of the AASHTO LRFD Bridge Design Specifications, LRFD Guide Specifications for the Design of Pedestrian Bridges, and CDOT Bridge Design Manual Section 31, shall govern the design.

All welded tubular connections shall be designed in accordance with Section 2, Part A and Section 9, Part A of the Structural Welding Code-Steel ANSI/AWS/D1.1 (Latest Edition).

Openings between horizontal or vertical members on pedestrian railings shall be small enough that a 4 in. sphere cannot pass through them for the lower 34" of the pedestrian rail.

½ inch diameter drain holes shall be drilled (flame cut holes will not be allowed) at all low points of all steel tubing members as oriented in the in-place, completed structure. In members that are level, or flat, a total of two drain holes shall be drilled, one at each end. Drain holes and their locations shall be shown on the Shop Drawings.

**628.06 Submittals.** The Contractor shall submit certified copies of all the required submittals per Section 105 and this specification to the Engineer and the Staff Bridge Branch Fabrication Inspection Unit. The submittals to the Staff Bridge Fabrication Inspection Unit can also be electronic. All pdf's with text or numerical data shall be 300 dpi, page aligned, text searchable, and in conformance with ISO PDF/A-1b archival specification. It shall be provided to:

- 1) DOWL
- 2) City of Montrose

**628.07 Shop Fabrication.** Welding and fabrication of weathering steel pedestrian bridges shall conform to the requirements of the Structural Welding Code-Steel ANSI/AWS D1.1 (Latest Edition) as amended by the following:

1. As required in Subsection 4.7, a welding procedure shall be established by qualification in accordance with the requirements of Subsection 3.3 for the ASTM A 847 material used on the bridge. The results of the Procedure Qualification shall be recorded on Form M1 in Annex M of AWS D 1.1.
2. The Contractor shall submit a Quality Control Plan. The Plan shall include personnel qualifications, certifications, and a Written Practice in accordance with ASNT SNT-TC-1A.
3. The quality of all welds shall be in accordance with Section 6, Table 6.1 for non- tubular and Section 9 and 9.16 for tubular. In Table 6.1, Undercut 7(B), the criteria for primary members shall apply to the bottom chord members.
4. All Complete Joint Penetration Groove Welds in butt joints in the bottom chord members shall be 100% Magnetic Particle tested in accordance with ASTM E709. Acceptance shall be determined in accordance with Section 6.10 and Table 6.1 for

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non-tubular using alternating Current. Section 9 and Table 9.16 for tubular, UT in accordance with 9.27.1. In addition, complete joint penetration groove butt welds welded from one side without backing of bottom chord members shall be examined by ultrasonic testing in accordance with Section 6.11.

5. Magnetic Particle Testing shall be performed on 100% of all attachment welds to the bottom chord, using Alternating Current, in accordance with Section 6.10 and Table 6.1 for non-tubular, Section 9 and 9.16 for tubular.
6. Welder Qualification Test Records shall follow 4.2.3 Period of Effectiveness.
7. A copy of all Procedure Qualification Records, Welder Qualification Test Records, Quality Control Plan and all visual and nondestructive test reports shall be provided to:
  - a. DOWL
  - b. City of Montrose

The structure shall conform to the clear span, clear width, structure depth, railing and any other requirements as shown on the plans. Metal handrails shall be installed at a height of five feet from top of deck. For bridges seven feet and wider, post with an R12-1 weight limit signs in conformance with MUTCD.

All weathering steel shall be blast cleaned, Steel Structures Painting Council Surface Preparation No. 6 (SSPC-SP6, Commercial Blast Cleaning), to remove mill scale and foreign material which would prohibit rusting to a uniform color.

**628.08 Field Construction.** The substructure shall be constructed in accordance with the details shown in the plans and the pedestrian bridge shop drawings. Before construction begins on the substructure, the Contractor shall determine the anchor bolt requirements and substructure dimensions needed to properly erect the structure. The Engineer shall be provided with two copies of detail sheets delineating these requirements before work begins.

The Contractor shall comply with CDOT Standard Specification Subsection 509.26 through 509.31 for Field Construction Requirements paying particular attention to Section 509.28 for Connections Using High-Strength Bolts. Fastener assemblies shall be tested using a Calibrated Tension Measuring Device. DTI washers shall be subject to tension verification by use of a separate direct tension measuring device.

A Pre-Erection Conference will be held at least one week prior to the beginning of erection. At least one week prior to the Pre-Erection Conference, the Contractor shall submit an Erection Plan (as specified in Section 509) to the Engineer for review. The Erection Plan will be reviewed by the Engineer. Written comments submitted by the Engineer shall be discussed at the Pre-Erection Conference and incorporated into the Final Erection Plan. The Final Erection Plan shall be signed and sealed by the Contractor's Engineer and Marked "Approved for Construction". If false work drawings are required, they shall conform to and be submitted in accordance with subsection 601.11.

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When a bridge spans traffic of any kind, including those where vehicles, railroad, watercraft or pedestrians have access onto, underneath or adjacent to, the Contractor's Professional Engineer shall inspect and provide stamped written approval of the stability of the erected bridge components prior to opening the area beneath the bridge to traffic. The Contractor is responsible for coordination of any inspection and submittal of construction documents with the local agencies, railroad etc. as required.

**METHOD OF MEASUREMENT**

**628.09** Pedestrian bridge will be measured by the complete Pre-Engineered Steel Truss Bridge and Deck Unit installed and accepted.

**BASIS OF PAYMENT**

**628.10** The accepted quantity shall be paid for at the contract unit price for the pay unit listed below. Payment will be made under:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Pre-Engineered Steel Bridge	LUMP SUM

Payment shall be full compensation for all work necessary to complete the item, which shall include design, fabrication, transportation to the bridge site, erection, inspection and construction including corrugated metal decking, railing, anchor bolts, bearing material and other items as shown on the plans. The substructure shall be measured and paid for separately. Payment will not be made for this item until all required reports, certifications, and forms have been submitted to the Engineer.